REMARKS

Claims 8-16 and 43-52 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 4,047,068 to Ress et al. (hereinafter "Ress") in view of U.S. Patent No. 3,816,771 to Moir. This ground of rejection is respectfully traversed. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the Claim limitations. The teaching or suggestion to make the Claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." Manual of Patent Examining Procedure (MPEP) §2142 (citations omitted). The suggestion/motivation to combine or modify under § 103 needs to be specific. If a "statement is of a type that gives only general guidance and is not specific as to the particular form of the Claimed invention and how to achieve it ... [s]uch a suggestion may make an approach 'obvious to try' but it does not make the invention obvious." Ex parte Obukowicz, 27 USPQ2d 1063, 1065 (U.S. Pat. and Trademark Off. Bd. of Pat. App. & Interferences 1993) (citations omitted).

"The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 23 USPQ2d, 1783-84 (Fed. Cir. 1992). As a corollary, the patent office has recognized that "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation

to make the proposed modification." (MPEP) § 2143.01 V. (citation omitted). Furthermore, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the Claims prima facie obvious." MPEP § 2143.01 VI. (citation omitted).

The Office Action asserts that including the fusion reactor of Moir as a charged particle source for the accelerator in Ress would be obvious. Ress discloses "a particle accelerator in which ions and electrons forming a plasma are driven along a predetermined path to attain a certain speed, e.g. for the purpose of inducing chemical or nuclear reactions." Ress, col. 1, lines 8-12. The numerous objects of Ress also relate to acceleration of both positively and negatively charged particles together in a plasma. Ress, col. 2, lines 5-59. In contrast, nuclear fusion reactions intrinsically generate highly accelerated particles by virtue of their very nature. To incorporate the nuclear fusion reactor of Moir as a source of particles to be accelerated by the Ress device is antithetical. Furthermore, as is evidenced at column 1, lines 7-10; Moir's operation is directed to separating charged particles according to kinetic energy level. To the contrary, Ress strives to keep particles of different charge and different mass (electrons and ions) together (see Ress's Objects, col. 2). These mutually exclusive objectives of the references lead away from the Ress/Moir combination. Indeed, why would a fusion reactor be used as a charged particle generator in a system where the charged particles are being accelerated to induce, at least under certain circumstances, just such a reaction? Such incongruence adds to the disincentive to combine. Accordingly, those skilled in the art would not be motivated to consider the Ress/Moir combination as asserted in the Office Action.

The rejection cites the Ress embodiment of Fig. 16. In this embodiment, programmer 751 times the injection of charged particles through inlet 721, and directs creation of such

particles with electrodes 753. The importance of this timing to Ress follows from its relation to the staggered energization of coils to provide desired magnetic field vectors. The substitution of the fusion reactor disregards the pulse timing and ionization functionality in Ress's Fig. 16 embodiment. (See, Ress, col. 13, line 41 through col. 14, line 6). Such disregard further indicates that the combination is improper.

In addition, the asserted Ress/Moir combination does not teach or suggest placing coils in a magnetic field and controlling strength of that field with the coils. The Office Action cites to Fig. 9 for the contention that separate coils adjust strength of the magnetic field between magnet assemblies 300a and 300d. One example of such an assembly is shown in Fig. 10. Notably, these assemblies are provided by external electromagnets. Fig. 4 provides an example of this electromagnet. Notably, it generates a magnetic field transverse to the particle pathway through the vessel. Moreover, there are no coil pairs in any of these magnetic fields to control its strength as defined in claim 1.

Besides the patentability of the base Claim 1, further reasons support patentability of Claims that depend from Claim 1. For example, Ress does not teach or suggest collimating the charged particles with the pair of coils as defined in Claim 9. Another example is that Ress does not teach or suggest providing at least a portion of the charged particles collimated with the coils to a magnetic mirror as set forth in Claim 10. The Office Action did not provide evidence in connection with the contention that a magnetic mirror as defined in Claim 10 is a "routine choice" -- being akin to an assertion that it is a matter of general or common knowledge. Evidence in support of the contention is respectfully requested under MPEP §2144.03. Yet another example is that Ress does not teach or suggest separating a first portion of the charged particles from a second portion with the coils as defined in Claim 11.

In still another example, Ress does not teach or suggest the first portion of charged particles being separated into electrons and positively charged particles as set forth in Claim 12. To the contrary, Ress's objective is to keep negatively and positively charged particles together. (See Ress, col. 2, lines 5-11). In a further example, Ress does not teach or suggest providing at least a portion of the charged particles to an electrostatic energy converter and providing electricity with the electrostatic energy converter as defined in Claim 13. Ress's focus on acceleration of both positive and negative particles together is inapposite to electrostatic energy conversion.

Moreover, Ress and Moir separately and collectively fail to teach or suggest an inertial electrostatic confinement device with an electrode and a stabilizing coil between the coils as defined in Claim 14. Also, Ress does not teach or suggest flowing electric current through the coils in a direction opposite an electric current flowing through the stabilizing coil as recited in Claim 15. In another instance, Ress does not teach or suggest generating a hexa-pole magnetic field as set forth in Claim 16. Thus, many reasons support patentability of dependent Claims corresponding to Claim 1.

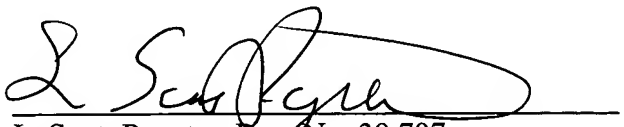
In regard to independent Claim 43, the combination of Ress and Moir does not suggest or teach an inertial electrostatic confinement (IEC) device -- let alone generating charged particles with it. Other features of Claim 43 include a pair of coils in the magnetic field that are also not taught or suggested in Ress as asserted. It should be appreciated that the particles produced by an IEC fusion reactor emerge in a spherical pattern, which presents a unique problem relative to the Ress and Moir references. Furthermore, desired operation of the IEC device favors limiting magnetic field penetration of the IEC core, which can be accomplished with the coils, among other things. Such distinctions further undercut the establishment of obviousness.

Besides the patentability of base Claim 43, additional reasons support patentability of rejected Claims depending therefrom. For example, Claims 44-46 are further supported by at least the same reasons given for Claims 9-11, respectively. In another example, Ress not only fails to teach or suggest an inertial electrostatic confinement device, but also fails to teach or suggest an electrode of the device positioned between the coil pair, and providing a stabilizing coil between the coil pair as defined in Claim 48. In yet another example, Claims 49 and 50 are also patentable for at least the same reasons as explained for Claims 15 and 16, respectively.

In regard to independent Claim 51, the combination of Ress and Moir does not suggest or teach providing a plurality of inertial electrostatic confinement devices along a magnetic field channel to generate and direct charged particles, or receiving at least a portion of these particles with a converter to provide electric power. The rejected dependent Claim 52 is patentable for at least the same reasons.

In view of the forgoing, it is believed that Claims 8-16 and 43-52 are in condition for allowance. Reconsideration of the above-identified patent application is respectfully requested. The Examiner is cordially invited to contact the undersigned by telephone to discuss any unresolved matters.

Respectfully Submitted,



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